In the claims:

1. (Currently amended) A planar antenna array in a radar sensor for detecting objects in the vicinity of a motor vehicle, with a multitude of microstrip feeder lines ~~(18)~~ and a multitude of coupling slots ~~(20)~~ for emitting microwave energy into open space, characterized in that

- the feeder lines ~~(18)~~ and the coupling slots (20) are embodied in a multilayer ceramic substrate ~~(10)~~ produced by means of the ~~LTCC~~Low Temperature Co-fired Ceramic thick layer technique with an upper ~~(12)~~ and a lower grounded layer, ~~and~~

- the feeder lines ~~(18)~~ and coupling slots ~~(20)~~ are enclosed by plated-through contacts ~~(14)~~ from the upper grounded layer to the lower one, and

- the feeder lines and coupling slots are surrounded at a fixed distance by plated-through contacts, the distance being smaller than a critical distance at which waveguide modes form.

Claim 2 cancelled.

3. (Currently amended) The antenna array according to claim 21, ~~characterized in that~~wherein the fixed distance lies in the range from approx. 0.01 * λ to approx. 0.1 * λ, where λ is the wavelength of the microwave radiation emitted.

4. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein each coupling slot ~~(20)~~ is enclosed by a single-row arrangement of plated-through contacts ~~(14; 30; 40, 42)~~.

5. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein each coupling slot ~~(20)~~ is enclosed by a double-row arrangement of plated-through contacts ~~(36, 38)~~, wherein the two rows are aligned with each other or offset from each other.

6. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein the distance of the coupling slots ~~(20)~~ from the end of the resonator is essentially (2n-1) * λ/4, where λ is the wavelength of the emitted microwave radiation and n is a natural number.

7. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein the distance of the coupling slots ~~(20)~~ from the back wall is essentially 2n * λ/4, where λ is the wavelength of the microwave radiation emitted and n is a natural number.

8. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein the plated-through contacts ~~(30, 36, 38)~~ enclose the coupling slots ~~(20)~~ along an essentially rectangular

perimeter line, wherein the distance of the coupling slots ~~(20)~~ from the edge of the plated-through contacts ~~(30, 36, 38)~~ is preferably essentially 2n * λ/4 perpendicular to the slot direction, where λ is the wavelength of the microwave radiation emitted and n is a natural number.

9. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein the plated-through contacts ~~(42, 46)~~ enclose the coupling slots ~~(20)~~ along a perimeter line that bulges in the middle of the slots, wherein the distance is greater than 2n * λ/4 in the middle of the slots and is less than 2n * λ/4 outside the middle, where λ is the wavelength of the microwave radiation emitted and n is a natural number.

10. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein the plated-through contacts ~~(48, 50)~~ enclose the coupling slots ~~(20)~~ along a perimeter line with rounded corners.

11. (Currently amended) The antenna array according to claim 1, ~~characterized in that~~wherein two rows of plated-through contacts are provided spaced apart from each other by the distance of half a wavelength.

In the abstract of the disclosure:

In order to produce a planar antenna array in a radar sensor with a multitude of microstrip feeder lines ~~(18)~~ and a multitude of coupling slots ~~(20)~~ for emitting microwave energy into open space, which achieves a favorable antenna efficiency when embodied in a planar design using LTCC technology, the invention proposes embodying the feeder lines ~~(18)~~ and the coupling slots ~~(20)~~ in a multilayer ceramic substrate ~~(10)~~ produced by means of the LTCC thick layer technique with an upper and a lower grounded layer ~~(12)~~, as well as enclosing the feeder lines ~~(18)~~ and the coupling slots ~~(20)~~ with plated-through contacts ~~(14)~~ from the upper grounded layer to the lower one.